REMARKS

In the non-final Office Action, the Examiner rejects claims 1, 2, 11, 21, 27, 30, and 31 under 35 U.S.C. § 103(a) as unpatentable over BODE et al. (U.S. Patent Application Publication No. 2003/0115187); and rejects claims 3-20, 22-26, 28, and 29 under 35 U.S.C. § 103(a) as unpatentable over BODE et al. in view of MCGREEVY (U.S. Patent Application Publication No. 2003/0004914). The rejections are respectfully traversed.[1]

By this Amendment, Applicants amend claims 1, 4, 6, 8, 11, 13, 15, 17, 21, 26, 27, 30, and 31 to improve form; cancel claims 3, 5, 12-14, 28, and 29 without prejudice or disclaimer; and add new claims 32-38. No new matter has been added. Support for the claim amendments can be found throughout the originally filed application, for example, at paragraphs 43-45 and 61. Claims 1-4, 6-13, and 15-38 are pending.

Rejection under 35 U.S.C. § 103(a) Based on BODE et al.

Claims 1, 2, 11, 21, 27, 30, and 31 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over BODE et al. The rejection is respectfully traversed.

Claim 1, as amended, substantially incorporates the features recited in former claim 5, and recites a method comprising identifying a potential stopword in a query based on a list of stopwords; generating a first set of context data based on the query;

[1] As Applicants' remarks with respect to the Examiner's rejections overcome the rejections, Applicants' silence as to certain assertions by the Examiner in the Office Action or certain requirements that may be applicable to such rejections (e.g., whether a reference constitutes prior art, motivation to combine references, assertions as to dependent claims, etc.) is not a concession by Applicants that such assertions are accurate or that such requirements have been met, and Applicants reserve the right to dispute these assertions/requirements in the future.

generating at least one second set of context data based on a version of the query in which the potential stopword has been removed; comparing the at least one second set of context data to the first set of context data; and classifying the potential stopword either as an actual stopword or a non-stopword based on the comparing. This combination of features is not disclosed or suggested by BODE et al.

For example, BODE et al. does not disclose or suggest classifying, based on a comparison of at least one second set of context data (generated based on a version of a query in which an identified potential stopword has been removed) to a first set of context data (generated based on the query), the potential stopword either as an actual stopword or a non-stopword. The Examiner alleges that BODE et al., at paragraph 111, discloses "using multiple information-bearing terms for searching documents and recognizing some search term(s) fails to appear in any returned documents," which the Examiner alleges corresponds to classifying a potential stopword either as an actual stopword or a non-stopword based on a comparing (Office Action, p. 4). The Examiner admits that BODE at al. fails to disclose classifying, as stopwords, those of the search terms that fail to appear in any returned documents ("no-show terms") (Office Action, p. 4). The Examiner, however, alleges that:

> It would have been obvious to . . . classifying non-effective search terms in a query as stopwords because it would have improve efficiency of a search engine by eliminating irrelevant and ambiguous terms from a query input to avoid excess irrelevant information is returned in which insufficient relevant information is available.

(Office Action, p. 4). Applicants disagree.

Paragraph 111 of BODE et al. discloses:

> For example, as discussed above, one technique of determining whether more searching would be useful uses the ability of search engine 410 to return search results that include hit counts for individual search terms in the user query as well as the total hit count for the search terms as combined using the search criteria's specified operators (such as the text operators "NEAR," "AND," "OR", etc). At least one example of using hit counts for individual search terms was discussed above in this document. In a further example, hit counts for individual search terms is used to actually reclassify a query from one query class 1005A-N to a different query class 1005A-N. For example, if a user query 1000 has two information-bearing terms, and is classified accordingly, if an initial search indicates that one of these terms does not appear in any documents, in one example, the user query is then reclassified as a single term query. Accordingly, in this example, subsequent searching is then carried out according to the search strategy mapped to a single term query class of query classes 1005A-N.

This section of BODE et al. discloses determining whether additional searching would be productive by using a search engine to return search results that include hit counts for individual search terms in a user query as well as the total hit count for the search terms as combined using the search criteria's specified operators. As disclosed in BODE et al., a user query that includes two information-bearing terms (i.e., non-stopwords (see paragraph 105)) is initially classified as such, but when an initial search indicates that one of the two non-stopwords does not appear in any documents, the user query is then reclassified as a single term query. Subsequent searching is then carried out according to the search strategy mapped to a single term query class. Applicants note that BODE et al. generally defines stopwords as "common words that typically don't add value to the search" (paragraph 131), for example, parts of speech such as prepositions and articles (paragraph 105). Accordingly, the above-cited section of BODE et al. clearly discloses reclassifying a two term query (each of the terms a non-stopword), as a single term query when search results for the terms individually searched produce a null set for either one

of the two non-stopwords, which the Examiner has identified as a "no-show term" or a "non-effective search term" (Office Action, p. 4). The Examiner's allegation that it would have been obvious to classify the "non-effective search term" as a stopword is not a reasonable one given that BODE et al. discloses that the "non-effective search term" is not a stopword, but instead an information-bearing term, and, moreover, defines stopwords as "common words," which, so defined, cannot reasonably produce a null set of search results when searched individually, as would be understood by one skilled in the art. Thus, nowhere in the above-cited section, or elsewhere, does BODE et al. disclose or suggest classifying, based on a comparison of at least one second set of context data (generated based on a version of a query in which an identified potential stopword has been removed) to a first set of context data (generated based on the query), the potential stopword either as an actual stopword or a non-stopword, as required by claim 1, as amended.

Applicants note that paragraph 132 of BODE et al., also relied upon the Examiner in rejecting claim 1, fails to disclose or suggest classifying, based on a comparison of at least one second set of context data (generated based on a version of a query in which an identified potential stopword has been removed) to a first set of context data (generated based on the query), the potential stopword either as an actual stopword or a non-stopword, as required by claim 1, as amended. Paragraph 132 of BODE et al. discloses:

> FIG. 12 is a flow chart illustrating generally one example of a term-extraction algorithm for parsing the user-query into information-bearing terms, at least in part by designating a list of about 500 stopwords deemed too common to add value to the search. At 1200, the user query is divided into its N words. At 1205, a "current term" index is initialized to 1. At 1210, a "current word" index is initialized to 1. At 1215, the current

> word is compared to the stopword list to determine whether the current word is a stopword. If not, then at 1220, the current word is included within the current term, and, if at 1225 another word exists beyond the current word, in the N words of the user query, the current word index is incremented by 1 at 1230, and process flow returns to 1215 to determine if the new current word is a stopword. If at 1225, no more words are left in the N words of the user query, the process of extracting information-bearing terms (i.e., words and/or phrases) from the user query is complete, at 1235.

This section of BODE et al. merely discloses a term-extraction algorithm for parsing a user query into information-bearing terms by designating a list of about 500 stopwords deemed too common to add value to the search, in which a user query is divided into its *N* words. The current word is compared to the stopword list to determine whether the current word is a stopword (block 1215), and if not, then the current word is included, as an information-bearing term, within the current term as (block 1220). Thus, nowhere in this section, or elsewhere, does BODE et al. disclose or suggest classifying, based on a comparison of at least one second set of context data (generated based on a version of a query in which an identified potential stopword has been removed) to a first set of context data (generated based on the query), the potential stopword either as an actual stopword or a non-stopword, as required by claim 1, as amended. Instead, BODE et al. specifically discloses the identification of stopwords in a query by comparing words in the query to a list of stopwords.

With respect to former claim 5, the Examiner alleges that MCGREEVY discloses "where query includes a number of query fields in a query model is generated and parsed," which the Examiner alleges corresponds to generating a first set of context data from the query, and "where relevance of query relation to stopterms is weighted for

eliminating the relations in a query model," which the Examiner alleges corresponds to generating a second set of context data from a version of the query in which the potential stopword is removed, citing paragraphs 194, 198, and 202 for support (Office Action, p. 10). Applicants disagree.

In paragraphs 194, MCGREEVY discloses:

> FIG. 12 shows one process 1200 where the query includes a number of query fields. A relational model of the contents of each one of the query fields is created in block 1202. Next, in block 1204, the models of query fields are combined. FIG. 13 illustrates one embodiment of a method 1204 of combining the query field models. A first relation from a first one of the query field models is selected in block 1302. A query model is initialized as being empty in block 1304. Then the term pair from the selected query model is compared to the relations in the query model in block 1306. If the term pair is not already in a relation in the query model, then the selected relation is included in the query model in block 1310. If the term pair is already included in one of the relations of the query model, then the order of the term pair in the selected relation and the order of the term pair in the query model are compared in block 1312. If the order is not the same, then the order of the term pair in the selected relation is reversed in block 1314 and the directional metrics recalculated in block 1316, i.e. the value of LCM and the value of RCM of the selected relation are exchanged. Once the order of the term pair in the selected relation and the order of the term pair in the query model are the same, then each of the corresponding types of relational metrics of the relation in the query model and the selected relation is combined in a summation of each type and the summation results replace the previous values of the corresponding types of metrics in the relation in the query model in block 1318. This process continues through the remainder of the relations in the selected query field model in blocks 1320, 1322. Once all relations of the first query field model have been processed then a subsequent query field model is selected in block 1324 and a first relation from the subsequent query field model is selected in block 1326 and this query field model is processed in blocks 1306-1322. Once all of the query field models have been processed, then the resulting query model is output in block 1328.

This section of MCGREEVY discloses a process 1200 in which the query includes a number of query fields. A relational model of the contents of each one of the query fields

is created (block 1202) and the models of query fields are combined (block 1204). A method 1204 of combining the query field models includes successively processing "relations" of all the query field models using term pair selection and comparison, and outputting the resulting query model. Nowhere in this section, or elsewhere, does MCGREEVY disclose or suggest classifying, based on a comparison of at least one second set of context data (generated based on a version of a query in which an identified potential stopword has been removed) to a first set of context data (generated based on the query), the potential stopword either as an actual stopword or a non-stopword, as required by claim 1, as amended.

In paragraph 198, MCGREEVY discloses:

> In phrase search, a query model can be modified as a function of the stopterms in the query. Recall that each query model contains relations, and each relation contains a term pair and associated relational summation metrics (RSMs). When a query model is created based on a query such as "on approach to the runway", that query model can include query model term pairs such as "on, approach", "on, to", "approach, runway", as well as others. One alternative is to eliminate all relations containing stopterms. As another alternative, stopterms can be retained and treated just like any other term. In yet another alternative, relations containing one or more stopterms can be differentiated from others. For example, in order to adjust the weight of each relation to favor topical term pairs such as "approach, runway" over terms [sic] pairs containing one stopterm such as "the, runway", and term pairs containing two stopterms such as "on, to", it is possible to modify the metrics of each relation as a function of the stopterms contained in the term pairs.

This section of MCGREEVY discloses a phrase search methodology in which a query model can be modified as a function of the stopterms in the query by: 1) eliminating all relations containing stopterms; 2) treating the stopterms as any other term; or 3) modifying the metrics of each relation as a function of the stopterms contained in the

term pairs, i.e., weighting term pairs differently based on the stopterm(s). Nowhere in this section, or elsewhere, does MCGREEVY disclose or suggest classifying, based on a comparison of at least one second set of context data (generated based on a version of a query in which an identified potential stopword has been removed) to a first set of context data (generated based on the query), the potential stopword either as an actual stopword or a non-stopword, as required by claim 1, as amended.

In fact, MCGREEVY in no way relates to identifying stopwords in a query, much less discloses or suggests classifying, based on a comparison of at least one second set of context data (generated based on a version of a query in which an identified potential stopword has been removed) to a first set of context data (generated based on the query), the potential stopword either as an actual stopword or a non-stopword, as required by claim 1, as amended. In contrast, MCGREEVY appears to disclose that if a particular term is included in a list of stopterms/stop relations, it is a stopterm, otherwise it is not. MCGREEVY further discloses that the user can add terms to or remove terms from the list of stopterms (paragraph 196).

In paragraph 202, MCGREEVY discloses:

> Another alternative embodiment includes a list of stop relations. A stop relation is a relation that does not necessarily include stopterms but is treated similarly to a stopterm in that stop relations may be excluded, or given more or less relevance weighting, etc., as described above for stopterms. Each one of the stop relations includes a first term and a second term and a number of types of relational metrics. For one embodiment, any stop relations in the relational model of the query are eliminated from the query. Eliminating a stop relation blocks the collection of the related concepts described by the stop relation. For example, returning to the fatigue example described above, a stop relation might include the term pair "fatigue" and "metal". Eliminating the "fatigue, metal" stop relation from the model of the query results in

> removing that contextual association from consideration as a relevant feature.

This section of MCGREEVY discloses a phrase search methodology that includes a list of stop relations, where a stop relation is a relation that does not necessarily include stopterms, but is treated similarly to a stopterm in that stop relations may be excluded, or given more or less relevance weighting, etc., as with stopterms. Each one of the stop relations includes a first term and a second term and a number of types of relational metrics. Nowhere in this section, or elsewhere, does MCGREEVY disclose or suggest classifying, based on a comparison of at least one second set of context data (generated based on a version of a query in which an identified potential stopword has been removed) to a first set of context data (generated based on the query), the potential stopword either as an actual stopword or a non-stopword, as required by claim 1, as amended.

At paragraphs 195-197, MCGREEVY discloses:

> Inputting the query can also include assigning a weight to at least one of the query fields. Each one of the RSMs corresponding to the selected query field is scaled by a factor determined by the assigned weight. This allows each query field to be given an importance value relative to the other query fields.
>
> Stopterms play an important role in phrase search because some queries will contain one or more stopterms. Stopterms can include any terms, but in one alternative, stopterms include words such as "a", "an", "the", "of", "to", and "on". In phrase search, the user can add terms to, or remove terms from, the list of stopterms.
>
> In one alternative of phrase search, a search finds subsets that contain a particular phrase that includes particular stopterms, such as "on approach to the runway". In another alternative of phrase search, stopterms are ignored and a search finds subsets containing phrases whose non-stopterms match the query phrase or phrases. For example, in the query "We were on approach to the runway at LAX" the words "we", "were", "on", "to", "the", and "at" could, if the user so indicated, be

> considered to be stopterms, and the query would match subsets containing sequences such as "He was on approach to runway 25L, a mile from LAX". In another embodiment, a query "on approach to the runway" matches all occurrences in subsets of "on approach to the runway" as well as similar phrases in subsets such as "on approach to runway 25R". Preferably the exact matches are listed first in the output.

These sections of MCGREEVY disclose that in a phrase search, some queries contain a stopterm(s) and the user can add terms to or remove terms from the list of stopterms. In a phrase search, a search finds subsets that contain a particular phrase that includes particular stopterms, or alternatively, stopterms are ignored and a search finds subsets containing phrases whose non-stopterms match the query phrase or phrases. Nowhere in these sections, or elsewhere, does MCGREEVY disclose or suggest classifying, based on a comparison of at least one second set of context data (generated based on a version of a query in which an identified potential stopword has been removed) to a first set of context data (generated based on the query), the potential stopword either as an actual stopword or a non-stopword, as required by claim 1, as amended.

For at least these reasons, claim 1 is patentable over BODE et al. (as well as MCGREEVY, whether taken alone, or in any reasonable combination).

Claim 2 depends from claim 1 and is, therefore, patentable over BODE et al. (as well as MCGREEVY, whether taken alone, or in any reasonable combination) for at least the reasons given for claim 1.

Amended independent claims 11, 21, 27, 30, and 31 recite features similar to, yet possibly of different scope than, claim 1 and are, therefore, patentable over BODE et al. (as well as MCGREEVY, whether taken alone, or in any reasonable combination) for at least reasons similar to the reasons given with respect to claim 1.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 1, 2, 11, 21, 27, 30, and 31 under 35 U.S.C. § 103 based on BODE et al.

Rejection under 35 U.S.C. § 103(a) Based on BODE et al. and MCGREEVY

Pending claims 3, 4, 6-10, 12, 15-20, 22-26, 27, and 29 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over BODE et al. in view of MCGREEVY. The rejection is respectfully traversed.

Claims 3, 4, 6-10, 12, 15-20, 22-26, 27, and 29 variously depend from claims 1, 11, 21, and 27 and are, therefore, patentable over BODE et al. and MCGREEVY, whether taken alone, or in any reasonable combination, for at least the reasons given above with respect to their respective amended base claims.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 3, 4, 6-10, 12, 15-20, 22-26, 27, and 29 under 35 U.S.C. § 103 based on BODE et al. and MCGREEVY.

New Claims

New independent claim 32 recites features similar to, yet possibly of different scope than, claim 1 and is, therefore, believed to be patentable over BODE et al. and MCGREEVY, whether taken alone, or in any reasonable combination, for at least reasons similar to the reasons given with respect to claim 1.

Claims 33-37 depend from claim 32 and are, therefore, believed to be patentable over BODE et al. and MCGREEVY, whether taken alone, or in any reasonable combination, for at least the reasons given for claim 32.

Claims 38 and 39 depend from claim 1 and are, therefore, believed to be patentable over BODE et al. and MCGREEVY, whether taken alone, or in any reasonable combination, for at least the reasons given for claim 1.

CONCLUSION

In view of the foregoing amendments and remarks, Applicants respectfully request the Examiner's reconsideration of this application, and the timely allowance of the pending claims.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1070 and please credit any excess fees to such deposit account.

Respectfully submitted,

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